STATE OF CALIFORNIA
CONSUMER POWER AND CONSERVATION
FINANCING AUTHORITY

TO: Board of Directors
California Power Authority

FROM: B. B. Blevins, Deputy Director Energy Facilities Development and Management

DATE: April 9, 2002

SUBJECT: DEMAND RESERVES BACK-UP MATERIALS FOR APRIL 12 BOARD MEETING

At the Board Meeting on April 12, 2002, CPA Staff will be requesting your approval of several actions that will initiate our Demand Reserves Program. This program will provide over half the capacity additions the Board has committed to in its Energy Resource Investment Plan. The program will achieve these additions by having predetermined end-users reduce their electric loads during critical periods of electricity demand.

There are five documents attached to this memorandum to assist your discussion of the item:

ATTACHMENT A: Summary description of the proposed program.

ATTACHMENT B: Draft Letter of Agreement with the Department of Water Resources (DWR). This document will evolve into a contract with DWR where DWR will buy the Demand Reserves and eventually allocate or assign these Reserves to the IOUs as they become creditworthy buyers. This letter agreement will define the key commercial terms of the relationship and allow us to initiate the DR program while a final contract is negotiated.

ATTACHMENT C: Letter of Agreement with APX. The terms and conditions contained in this document will be incorporated into a contract with APX. APX will provide Scheduling Coordination services to schedule and settle the Demand Reserves purchases with the ISO. APX will also provide and operate the communications and metering infrastructure necessary to support the Demand Reserves as an ISO certified Ancillary Service. Finally, APX will provide settlement support services to CPA in monitoring the performance of the Demand Reserve Providers/Aggregators and paying them accordingly.

ATTACHMENT D: Draft Standard Contract between the CPA and Aggregators/Demand Reserve Providers. The latter group will seek program participants (end-users) willing to reduce their electricity load when demand reduction is needed.

ATTACHMENT E: Standard Participating Load Agreement with the California Independent System Operator (CAISO). CPA will sign this standard contract used by the CAISO with entities that use demand reduction to provide ancillary services.

ATTACHMENT F: Letters of Support. The California Technology and Manufacturers Association, the California Retailers Association, the Association of California Water Agencies and the California Chamber of Commerce have written letters in support of the proposed program.

It is expected that the total costs of the program over a 5-year period will be about $230 million. By purchasing these Demand Reserves from CPA, DWR is expected to reduce wholesale purchase costs in California by $300-500 million over the life of the program. CPA's infrastructure costs to deploy the program will be $1 million, probably covered through an interagency agreement with the California Energy Commission (CEC). For its operation of the program, the CPA will receive a broker's fee at the rate of $4-6/kW-yr or $4-6 million by the second year. About half to 2/3 of these revenues will cover operating costs, including the APX costs. The other 1/3 of these revenues will contribute to CPA's overhead costs.

The CPA staff looks forward to discussing these items with you. By directing the CEO to proceed with final contracts consistent with the terms and conditions outlined in the attached documents, we can move forward in accordance with Authority's Energy Resource Investment Plan.

B. B. Blevins

CPA Demand Reserves Proposed Program

April 6, 2002

Features:

- **Statewide program can provide 500 - 1000 MW this summer**
  - This is additional to existing load reduction programs.
  - Business (and state government) says a consistent state-wide program is quicker to adopt than one that varies by utility.

- **Program proceeds under a CPA contract with DWR**
  - 5 year contract provides needed certainty to get lower costs and lower incentive payments to end users;
  - in phase 1, DWR has CPA (APX) schedule these reserves with the ISO to reduce its purchase of Reserves/Ancillary Services and energy;
  - participating end users, many with CEC real-time meters, receive monthly payments from CPA via Aggregators (see attached diagram) for standing by with dispatchable, and immediately verifiable, capacity;
  - in phase 2, these contracts are allocated to the utilities *when they become credit-worth buyers*, and the reserves are scheduled to their benefit; this program has significant flexibility in fitting their portfolio needs.

Operations:

- **APX, under contract to CPA, installs and operates a real-time monitoring and communications system to:**
  - schedule these reserves and energy with the ISO on DWR's behalf,
  - provide aggregators and end users with notification that either DWR or ISO wants them to reduce demand during high cost or low reserve hours, but not more than 150 hours per year.
  - verify that the demand reduction by end users occurs when requested, which
    - allows the ISO to use demand reduction capability as Reserves,
    - reduces the Reserves that DWR must purchase,
  - allocate payments to aggregators/end users in proportion to their demand reduction.

Financial Impact:

- **DWR pays up to $50 million per year ($28 million in 2002 as a partial year) to CPA for 1000 MW**
  CPA passes most of these dollars to aggregators and end users as incentives.

- **No revenue requirement impact to DWR in 2002**
  The savings in Ancillary Services and wholesale energy costs (e.g., $28 million in 2002) offset the CPA payments.

- **$30 million net savings annually by 2005**
  By locking in at today's low prices, this contract will save Californians $30 million annually by 2005 and 2006. (see attached)

- **Demand reserves are available at 20-50% lower cost than interruptible rates or peakers.**
  (see attached)

Longer Term Financial Impacts

1. Cost Impact of Demand Reserves vs buying Ancillary Services and peak energy in the *spot* wholesale market.

($000)

	2002	2003	2004	2005	2006
CPA Charges	27940	50000	50000	50000	50000
Wholesale Cost Savings	28374	50947	56042	80000	80000
Net costs	-434	-947	-6042	-30000	-30000

The CPA Demand Reserve Program has lower net costs than the costs projected in the spot wholesale marketplace.

2. Annual Costs of CPA Demand Reserves versus other *longer-term* options for achieving 1000 MW

CPA's Demand Reserves are 20-50+% cheaper than most longer term options.

($000)

New Peaker	65,000 -140,000
Interruptible	80,000 -100,000
Ancillary Services -- average last 4 years	145,000
CPA DR	50,000

Other Benefits:

- **Maintains reliability, controls price volatility, and has negligible air emissions**
  - This meets CPA's legislative mandate

- **Targeted reliability**
  - This program can be exercised only in targeted areas with local reliability problems.

- **As a statewide program, all end users – no matter who their utility or energy service provider, can participate.**
  - A number of end users have asked for a uniform statewide program to make it easier to implement at all their California locations;
  - Some of the organizations best able to reduce demand are not served by the Investor Owned Utilities.

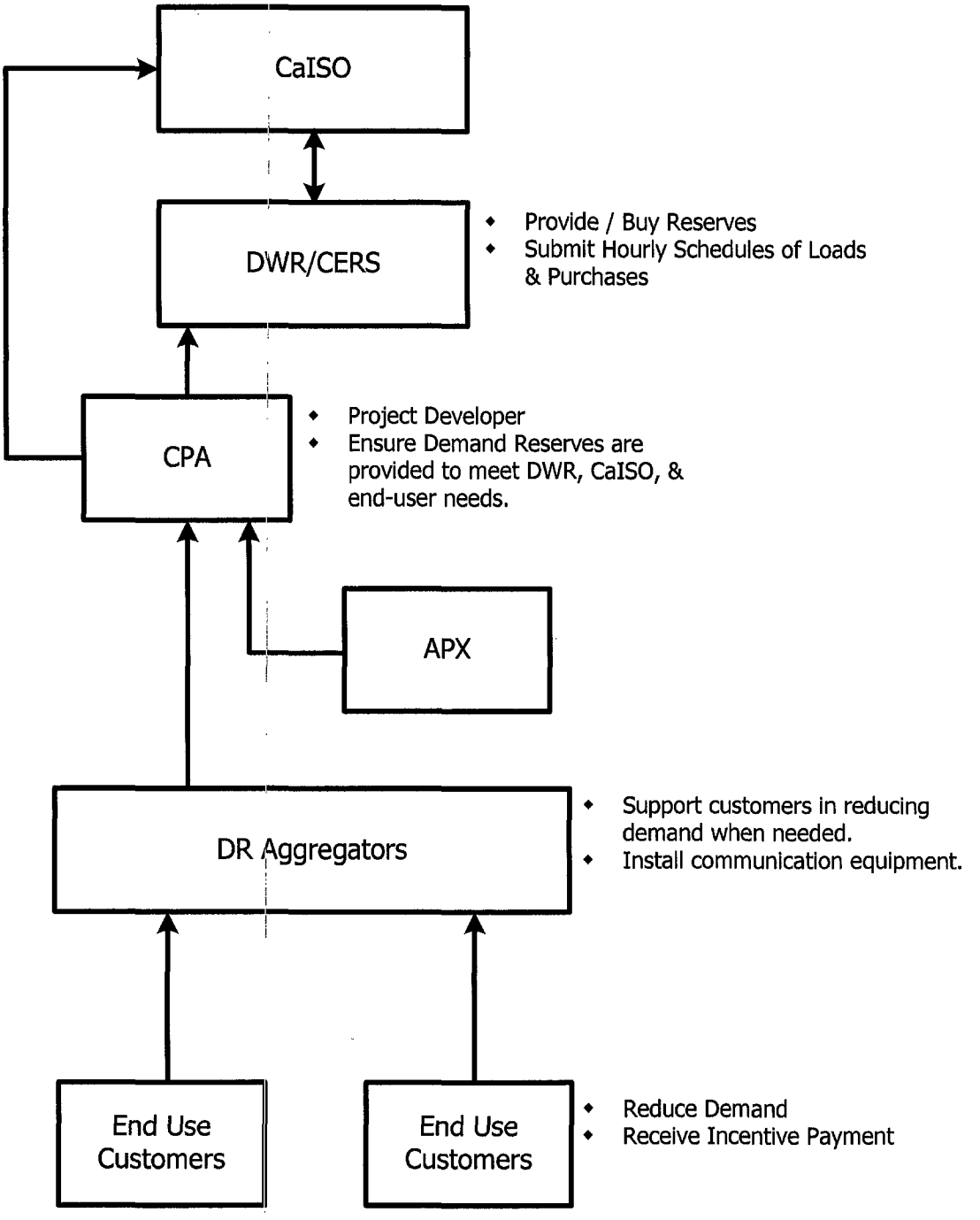
- **Performance enhanced and guaranteed**
  - By blending loads and aggregators, CPA can achieve demand reduction that provides greater reserves benefits than conventional demand reduction programs.
  - CPA and aggregators manage the risk of non-performance by end users.

- **More flexibility than conventional demand reduction programs**
  - This can be used for ancillary services, peak shaving, or emergency control – most programs can only be used for peak shaving or emergency control.

- **CPA program has broad interest and support**
  - CMTA, SVMG, ACWA, CRA (Retailers), Chamber

- **Supports Renewable Energy**
  - Provides firm capacity to balance intermittent nature of some renewables (e.g., wind)

CPA Demand Reserves Program
Contract Relationships



Electricity Reserves
Background

1. Electricity Supply and Demand must be balanced precisely each second.
    - Electricity cannot be stored; it perishes instantly.

2. Several factors create uncertainty in the supply-demand balance
    - weather – heat increases cooling demand
    - unexpected power plant shut down
    - uncertain economic growth

3. Several types of reserves are used to balance supply and demand
    - Regulating – follow instantaneous fluctuations
    - Spinning and Non-Spinning – must be available in 10 minutes
    - Replacement reserves – must be available in 60 minutes
    - Installed reserves – must be available within a day

4. A mix of reserves balances cost and reliability
    - Faster responding reserves are more expensive.
    - California Independent System Operator (CaISO) requires a mix of the above so that total reserves each day are at least 7% more than peak demand
    - CaISO is revising its market rules – will probably add an Installed Reserves component

5. Demand Reserves – reduce demand instead of increasing supply
    - are cheaper and cleaner
    - CaISO accepts demand reduction for non-spinning and replacement reserves (10 minute and 60 minute response)
    - CaISO also allows utilities to change their supply or demand schedules in Day Ahead market and Hour Ahead market

6. CPA Plan proposes Demand Reserves as part of its mission to insure adequate reserves.

7. Today the California Department of Water Resources has a unit – California Energy Resources Scheduling – that buys most of the reserves in California, until the investor-owned utilities are credit-worthy.